

ORIGINAL ARTICLE

# Unemployment, Social Support and Health Problems

Results of the GEDA Study in Germany, 2009

Lars E. Kroll, Thomas Lampert

## SUMMARY

**Background:** It is well documented that the unemployed have more health problems than the employed, and that social support facilitates coping with unemployment. The association of unemployment and social support with health was examined on the basis of representative data derived from a German study.

**Methods:** The GEDA study (*Gesundheit in Deutschland Aktuell* [Current Health in Germany]) was conducted in 2008/09 by the Robert Koch Institute, the nationwide governmental public health agency in Germany. For this paper, we analyzed data from the GEDA study that were obtained from 12022 persons aged 30 to 59. We used health indicators taken from the Four-Item Healthy Days Core Module of the Centers for Disease Control (CDC), and we measured social support on the Oslo Three-Item Social Support Scale. We report the findings on impairment in three distinct areas (physical, emotional, and functional) and the results of a multivariate statistical analysis.

**Results:** Unemployed persons aged 30 to 59 years suffer physical, emotional, and functional impairment more commonly than employed persons. Men and women with little social support are more likely to be impaired in these three areas whether they are employed or not. Regression analysis reveals that unemployment and social support have significant, independent effects on both the incidence of such impairments ( $OR_{unemployed} = 1.2\text{--}1.7$ ,  $OR_{supported} = 0.4\text{--}0.9$ ) and on their duration ( $IRR_{unemployed} = 1.3\text{--}1.8$ ,  $IRR_{supported} = 0.6\text{--}0.8$ ) after age, income, and education have been controlled for.

**Conclusion:** Physicians should be mindful of the deleterious effect of unemployment on health and should encourage unemployed patients to participate in social networks, as the evidence shows that social support can have health benefits.

► Cite this as:

Kroll LE, Lampert T: Unemployment, social support and health problems—results of the GEDA study in Germany, 2009. *Dtsch Arztebl Int* 2011; 108(4): 47–52. DOI: 10.3238/arztebl.2011.0047

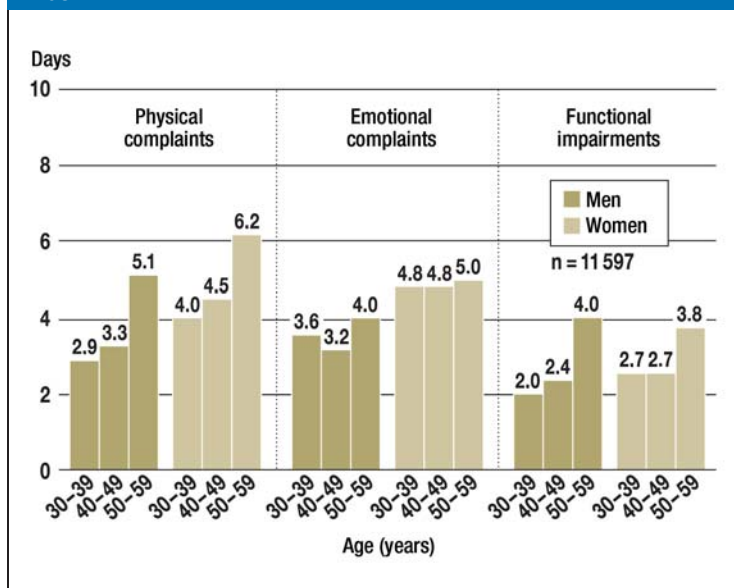
The health-related consequences of unemployment are a central subject of medical sociology, health psychology and social medicine and are regularly addressed by federal and regional health reporting bodies in Germany. Many studies have shown clearly that unemployed men and women suffer from more health problems and more frequently behave in ways that pose risks to their health than those who are employed (1–4). Unemployed men and women's increased consumption of medical and psychotherapeutic resources are also relevant to health services research. Unemployed people use health services more often, are more affected by sleep disorders, depression, anxiety disorders, and addictions, and commit suicide more frequently (5, 6).

Health-related consequences of unemployment manifest as psychosocial health problems due to loss of income, job-related social contact, or social prestige (7–12). Social resources have a particularly marked effect on how well individuals cope with unemployment: the person affected copes with the loss of his/her job more successfully if he/she has a social support network and does not feel alone (2, 13, 14). This article describes the relationship between unemployment; social support; and physical, emotional, and functional complaints in the German population of working age (whether employed or unemployed), on the basis of representative data for 2009. As yet there are no representative analyses in Germany of the association between unemployment, social support, and health which examine both the probability of impairments of various kinds and their duration.

## Methods

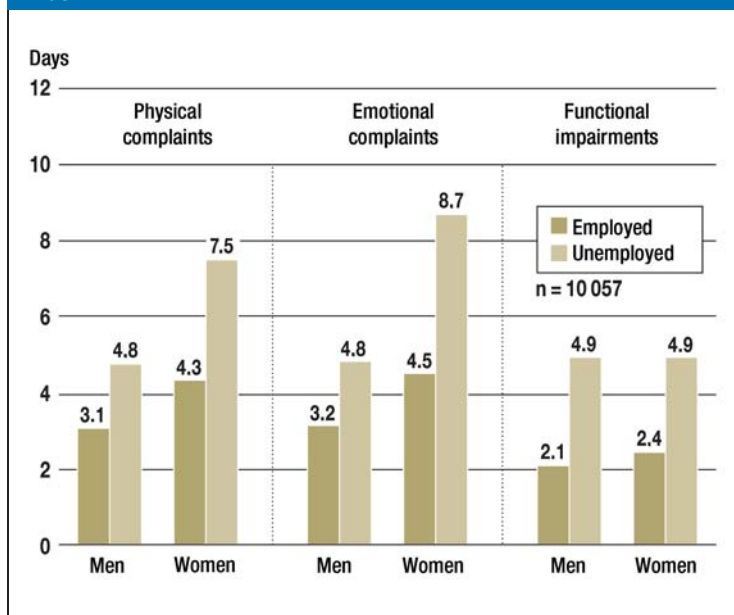
Data from the 2009 GEDA study (*Gesundheit in Deutschland Aktuell* [Current Health in Germany]) were used to analyze the relationship between unemployment and health complaints (*Table 1*). The GEDA study was a telephone survey conducted as part of the Robert Koch Institute's health monitoring program between July 2008 and June 2009 (15, 16). Sampling was based on the Gabler-Häder design for random sampling of telephone numbers. Numbers were generated at random on the basis of entries in the telephone directory, and telephone numbers not in the directory could also

FIGURE 1



Number of days with physical, emotional, or functional complaints in the last month, by age and sex (n = 11 597)

FIGURE 2



Number of days with physical, emotional, or functional complaints in the last month, by employment status and sex (n = 10 057)

be included in the sample. The reference population included all adults living in private households with landline telephones. The subjects of the survey were divided into a core subject area which remained constant in follow-up inquiries and a flexible subject area which addressed current problems and subjects. A total of 21 262 people were surveyed as part of the study. The response rate, i.e. the number of interviews conducted as a percentage of the total number of members of the population contacted (response rate 3 according to the American Association for Public Opinion Research, AAPOR), was 29.1% (e5). Subsequent analysis involved study participants' information on their employment status, from the Four-Item Healthy Days Core Module of the United States Centers for Disease Control and Prevention (CDC) (17), their perceived social support (18), their education and training (19), and their net household income. Analysis included only study participants who were aged between 30 and 59 when surveyed (n = 12 022). It can be assumed that individuals of this age have already completed their education and training but have not yet retired (e1).

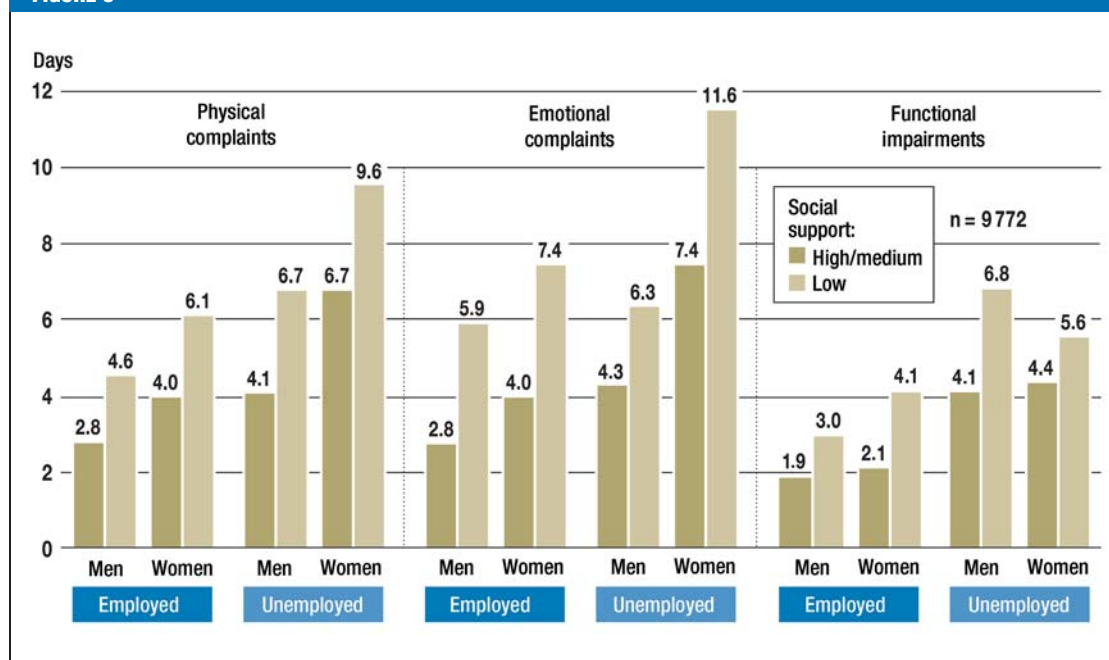
The data on employment status in this study are subjective assessments of individuals' current situation. Participants were first asked whether they were currently employed (n = 9903). Those who answered no were then asked whether they were currently unemployed (n = 484). Thus no registration with an employment agency was needed for someone to be classified as "unemployed." Those who were not part of the working population (n = 1635) were not included in these analyses. This definition is based on the concept of unemployment put forward by the International Labour Organization (ILO) (e1).

The dependent variables used were three overall indicators of health-related quality of life. All three were taken from the Four-Item Healthy Days Core Module (HRQOL-4) of the CDC (17). The questions had been translated into German. They addressed numbers of days in the last month with physical complaints (due to illnesses or injuries), mental problems (stress, depression, general mood), and functional limitations affecting respondents' usual activities (self-care, work, recreation). In this study, the number of days respondents had suffered each of these impairments was analyzed.

The indicator *social support* is based on the Oslo Three-Item Social Support Scale, a scale used in Europe to measure perceived social support (18, 20). Study participants were asked three questions on how many close friends they had, how involved other people were in their lives, and the availability of help from their neighbors. According to the instructions for using the scale, the replies were used to calculate a cumulative total score (3 to 14 points), which was then allocated to one of the following categories: low (3 to 8), medium (9 to 11), high (12 to 14).

The control variables were participants' age, level of education, and equivalized income. The authors classified participants' level of education and training on the

FIGURE 3



Number of days with physical, emotional, or functional complaints in the last month, by employment status, social support, and sex (n = 9772)

basis of the CASMIN model, which is used internationally. Information they themselves provided on their households' net income was adjusted according to the new OECD-modified equivalence scale for household size. This corresponds to the German Federal Government's report on poverty and wealth (e4). Unavailable information on participants' income (n = 2797) was statistically estimated on the basis of regional statistical information from the database INKAR 2007 and information they themselves provided on household size, education, and age (n = 2654), using a multilevel model. In subsequent analyses, the authors first provided a descriptive representation of the distribution of the three dependent variables according to sex and next carried out a multivariate analysis of them on the basis of a regression model for count data (zero-inflated negative binomial regression) (21). The analyses were conducted using the program Stata, version 10.1 (22).

## Results

Figure 1 shows the average number of days with physical, emotional, or functional complaints according to age and sex. The number of days with physical and functional complaints increases with age in both men and women, while there is a smaller increase in emotional complaints. The number of days with impairments is lower in men than in women in all examined age groups. On average, 30 to 59-year-old men had physical or emotional complaints on 6.6 days in the last

30 days, while the corresponding number for women in the same age group was 8.6 days. The surveyed men and women suffered health-related functional impairments affecting their daily activities on only 2.8 and 3.1 days respectively.

Figure 2 shows the number of days with complaints according to employment status and sex. According to this information, the employed are significantly less frequently affected by physical, emotional, or functional complaints than the equivalent groups of unemployed men and women. There are bigger differences between the employed and the unemployed for women than for men. There were particularly marked differences in men's number of days with functional impairments (difference employed vs unemployed = 2.8 days) and women's number of days with emotional complaints (difference employed vs unemployed = 4.2 days).

The information in Figure 3 is additionally differentiated according to the level of social support perceived by study participants in their surroundings. Overall, 71% and 65% of unemployed men and women respectively, but 86% of the employed, scored medium or high levels on the scale for social support. The group with social support shows significantly better results for all three types of impairment than the unemployed or the employed with only low levels of social support. Employed people with low levels of social support reported an average of 3.5 days with physical or

**TABLE 1**

**Description of the sample of the GEDA study: adults aged 30 to 59 (n = 12 022)**

Parameter	Categories	Number of cases	Sample (%)	Reference population (%) <sup>*</sup>
Sex	Men	5006	42	50
	Women	7016	58	50
Age	30–39 years	3394	28	30
	40–49 years	4924	41	39
	50–59 years	3704	31	31
Employment status	Employed	9903	95	94
	Unemployed	484	5	6
Social support	Low	1674	14	16
	Medium	5891	51	50
	High	4051	35	33
Unemployed only: Social support	Low	453	30	32
	Medium	453	46	46
	High	453	23	21
Level of education	Low	2215	18	28
	Medium	6230	52	54
	High	3538	30	18
Income	Equalized income	11 879	€ 1782	€ 1616

<sup>\*</sup> Calculation based on the German adult population as of 31 December 2008

emotional complaints, while those with medium or high support reported only 2 days. The corresponding figures were 6.2 and 4.4 days respectively for the unemployed. Physical and emotional complaints were particularly common in unemployed women with low levels of social support (9.6 and 11.6 days respectively).

Table 2 shows the results of regression analysis for count data (zero-inflated negative binomial regression [e2]). The effect of unemployment and social support on the duration of impairments (incidence rate ratio, IRR) and the probability of their not occurring (odds ratio, OR) were examined. The effects were controlled for differences in participants' ages, levels of education, and needs-adjusted household incomes.

The results show that for unemployed men and women the probability of not having suffered any complaints in the last 30 days is low, while it is significantly higher for respondents with social support than for those who perceive that they have little social support. When unemployed and employed men and women are compared, only differences in functional impairments are statistically significant, while the effect of social support is significant in all cases except for physical complaints in men.

The duration of impairments in the last month is correlated with employment status and perceived levels of social support, regardless of their overall probability of occurrence. In women the correlation between duration of complaints and employment status and social support is significant for all three types of complaint. In men, only the effect of social support on the duration of functional impairments is not statistically significant.

## Discussion

The presented results make it clear that in Germany unemployment is associated with worse physical, emotional, and functional health in both men and women. Unemployed men and women also suffer from their complaints for longer on average than the employed when their age, financial situation, and level of education are controlled for. When unemployed and employed people can rely on a supportive social network, this is associated with a lower risk and shorter duration of complaints.

It has already been documented many times that the health-related consequences of unemployment can be mitigated by social support (13, 14). These results are in line with the international literature in that they describe a correlation between unemployment, social support, and various aspects of health for Germany too—for the first time on the basis of representative data. The results also clearly indicate that the correlation with the duration of complaints is stronger than the correlation with the risk of their occurrence.

The limitations of this research are that it uses cross-sectional data which do not allow causal relationships to be inferred. The relationship between unemployment and health is reciprocal: health and health-related behavior may be either the cause or the result of

TABLE 2

**Factors affecting the occurrence and frequency of physical, emotional, and functional complaints (Cs) in the last month, by sex (data source: GEDA 2009, age 30 to 59 years)**

	Men						Women					
	Physical Cs n = 4462		Emotional Cs n = 4466		Functional Cs n = 4428		Physical Cs n = 5362		Emotional Cs n = 5333		Functional Cs n = 5316	
No. of days with complaints	IRR*	(95% CI)	IRR*	(95% CI)	IRR*	(95% CI)	IRR*	(95% CI)	IRR*	(95% CI)	IRR*	(95% CI)
Employment status												
Unemployed	1.58	[1.21–2.06]	1.61	[1.27–2.05]	1.77	[1.29–2.44]	1.48	[1.23–1.78]	1.46	[1.23–1.74]	1.34	[1.06–1.71]
Employed	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Social support												
Medium/high	0.74	[0.63–0.87]	0.64	[0.56–0.73]	0.84	[0.68–1.03]	0.73	[0.65–0.82]	0.61	[0.55–0.68]	0.67	[0.58–0.79]
Low	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
No complaints in the last month	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Employment status												
Unemployed	0.69	[0.46–1.03]	0.81	[0.51–1.28]	0.57	[0.40–0.82]	0.76	[0.54–1.06]	0.71	[0.43–1.19]	0.57	[0.42–0.76]
Employed	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Social support												
Medium/high	1.11	[0.89–1.40]	2.27	[1.63–3.14]	1.40	[1.13–1.73]	1.47	[1.19–1.82]	1.56	[1.12–2.16]	1.65	[1.37–1.99]
Low	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	

\* Results of zero-inflated negative binomial regression analysis for count data, simultaneously including all influencing variables and controlling for age, equivalized income, and level of education. Incidence rate ratio (IRR): factor by which the number of days with impairments of each type is increased in comparison to the appropriate reference group (Ref.); odds ratio (OR): the probability of having had no days with complaints of any type in the last month in comparison to the appropriate reference group (Ref.)

unemployment (23, 24). The observed correlation between unemployment and health complaints must therefore be partly due to selection of unemployed individuals with health problems. However, in the 2009 GEDA study participants were also asked about their assessment of the reasons and consequences of their unemployment. 17% of unemployed individuals replied that their health had deteriorated as a result of their unemployment, while 18% stated health problems as the ultimate cause of their having lost their jobs. Further research should also address correlations between the duration of current unemployment, the availability of social support, and the health of those affected, in greater depth. This is not possible on the basis of current GEDA data. Interpretation of the results must also take into account that the health indicators used were self-reported. Nevertheless, previous cohort studies have successfully identified correlations between unstable employment and physiological parameters such as blood pressure, cholesterol levels, and body mass index (e3).

In summary, the current findings support the hypothesis that unemployment seems to be associated with various health complaints. It should therefore not be underestimated in medical practice. In view of the repeatedly documented health benefits of social support, doctors should encourage unemployed patients to

#### KEY MESSAGES

- Numerous studies in Germany and abroad have shown that unemployment poses a significant risk to health.
- Unemployed men and women in Germany suffer more frequently and for longer from physical complaints, psychological complaints, and health-related restrictions of their daily activities than those who are employed.
- Men and women who receive social support from their partners, relatives, or friends and acquaintances are affected by such complaints less frequently.
- The positive correlation between social support and health is observed in both employed and unemployed men and women.
- The correlations indicate that although social support helps people cope better with unemployment, its health-related consequences cannot be completely mitigated.



engage more actively in non-professional networks instead of isolating themselves socially. However, the stress caused by loss of employment during a recession cannot be resolved by either the treating physicians or the social networks of those affected alone. Compensatory measures as part of social policy and employment policy must also buffer the effects of unemployment, so as to minimize negative effects on public health (25).

#### Acknowledgment

The authors would like to thank units FG25 and FG21 of the Robert Koch Institute for providing us with the data from the 2009 GEDA study.

#### Conflict of interest statement

The authors declare that no conflict of interest exists according to the guidelines of the International Committee of Medical Journal Editors.

Manuscript received on 9 July 2010, revised version accepted on 21 September 2010.

Translated from the original German by Caroline Devitt, MA.

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